Title: Automated Generation of Realistic Terrain Using Machine Learning Techniques

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Abstract: Artificial terrain is important component of computer games, simulations and films. Manual terrain creation can be arduous process, hence automatization of this process would be convenient in many cases. Thanks to current advances in employing artifical neural networks on various generative tasks, the possibility of generating terrain using artificial neural networks should be investigated. We will focus on Generative Adversarial Networks as it is one of the most successful content generation method, and we will adjust this method to the task of artificial terrain generation. Resulting model is capable of generating realistic terrain based on raster sketch given by user and allows interactive modelling. Disadvantage of the model is it's requirement of a lot of training data. However, thanks to global elevation datasets providing us with more than enough training data, the model could be useful in certain applications.

Keywords: procedural generation, terrain, neural networks, deep learning